

925,346.

A. KELLER.  
TALKING MACHINE.  
APPLICATION FILED OCT. 4, 1907.

Patented June 15, 1909.

3 SHEETS—SHEET 1.

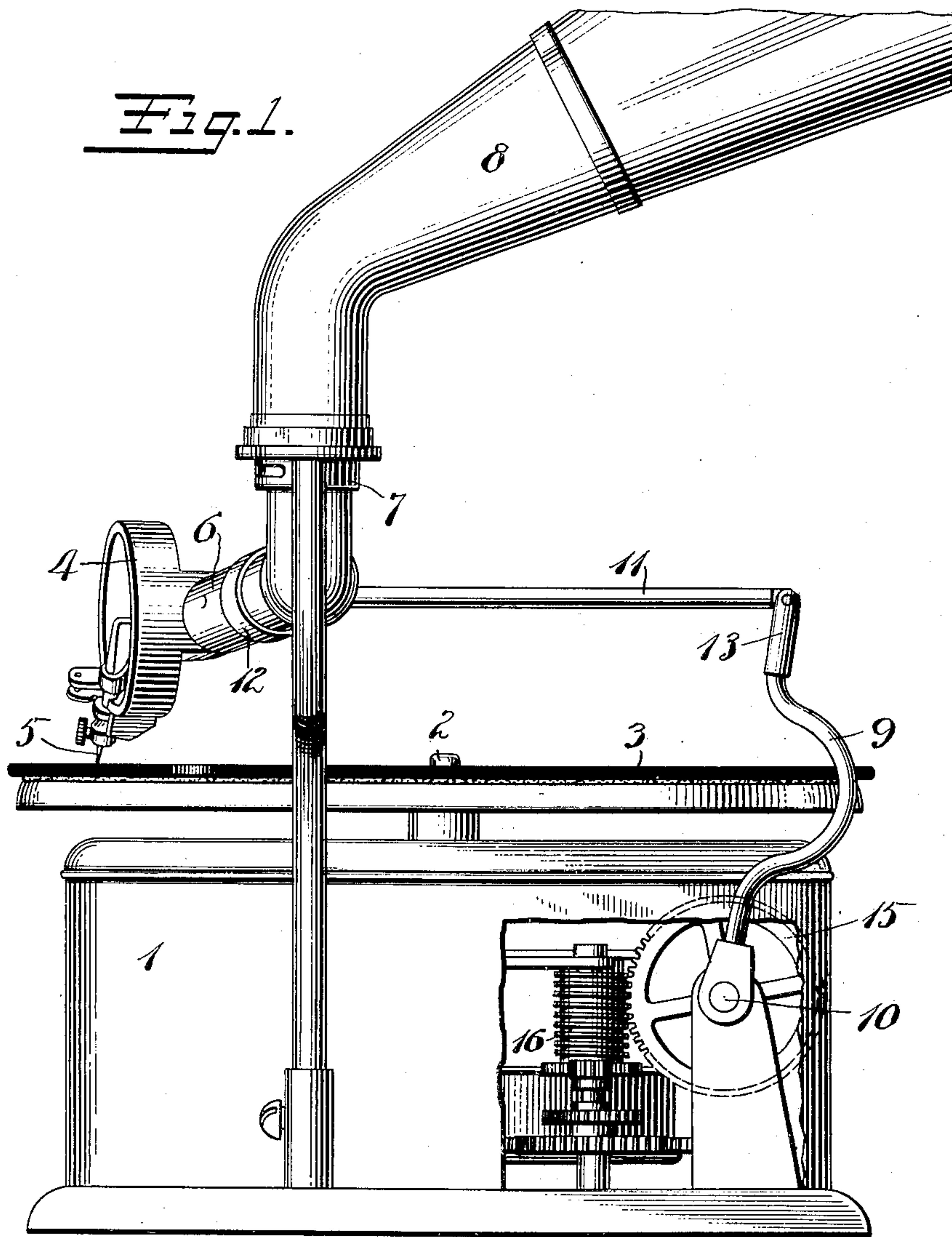


Fig. 3.

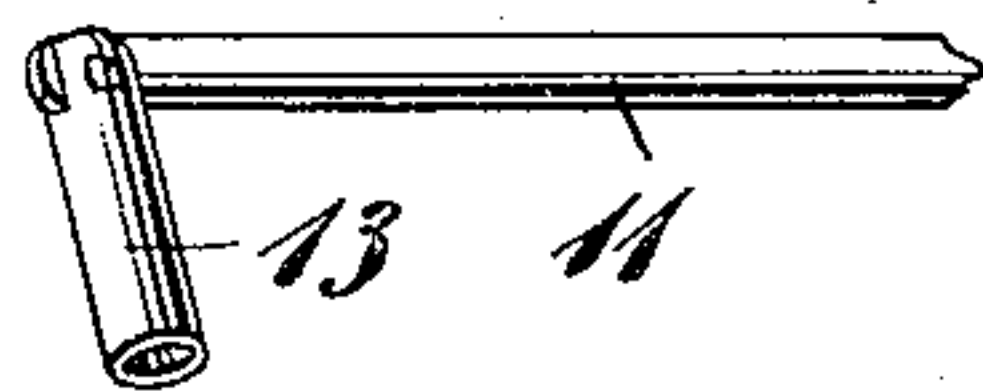


Fig. 4.

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Inventor  
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By his Attorneys  
*Robert Barron & Muelner*

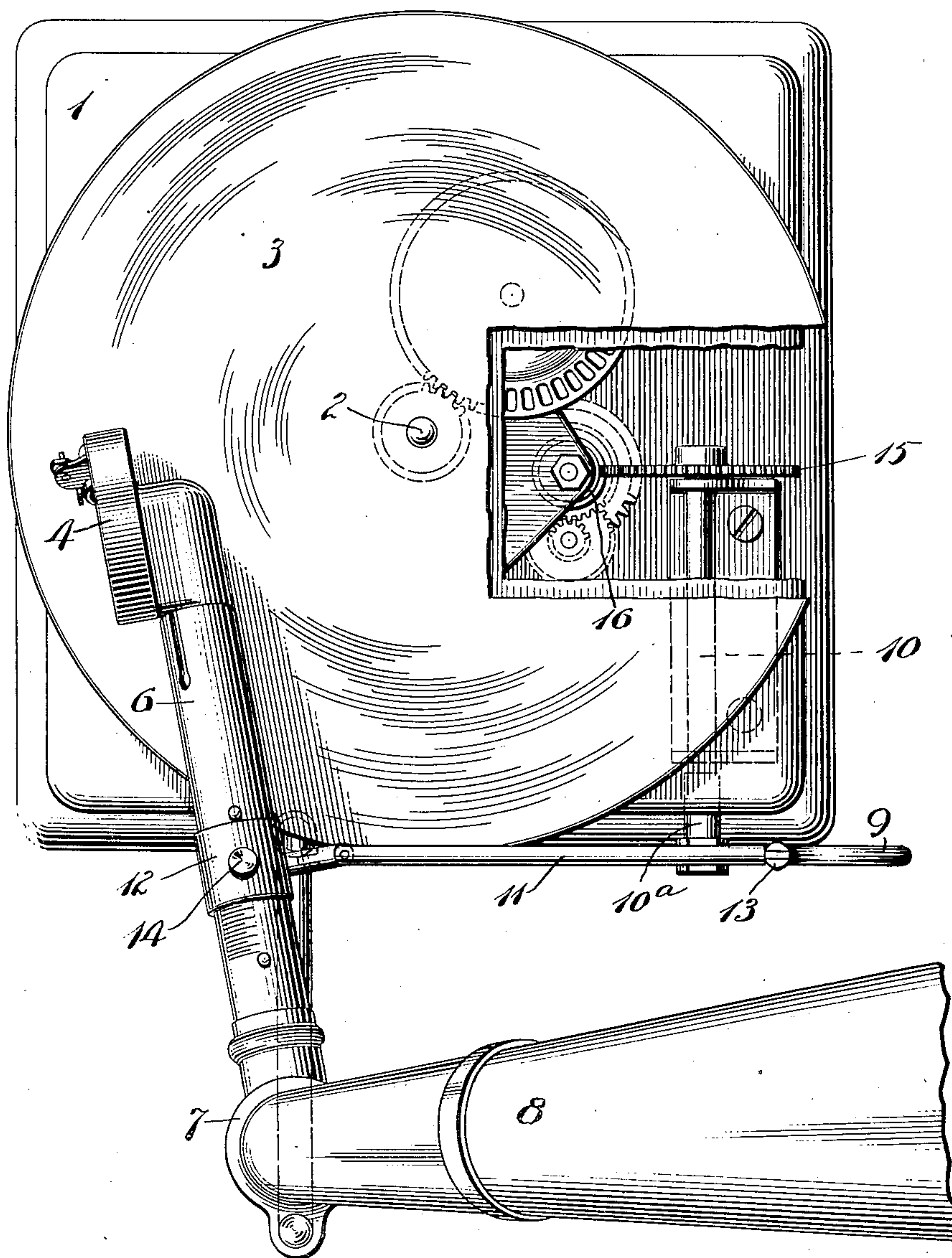
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3 SHEETS—SHEET 2.

Fig. 2.



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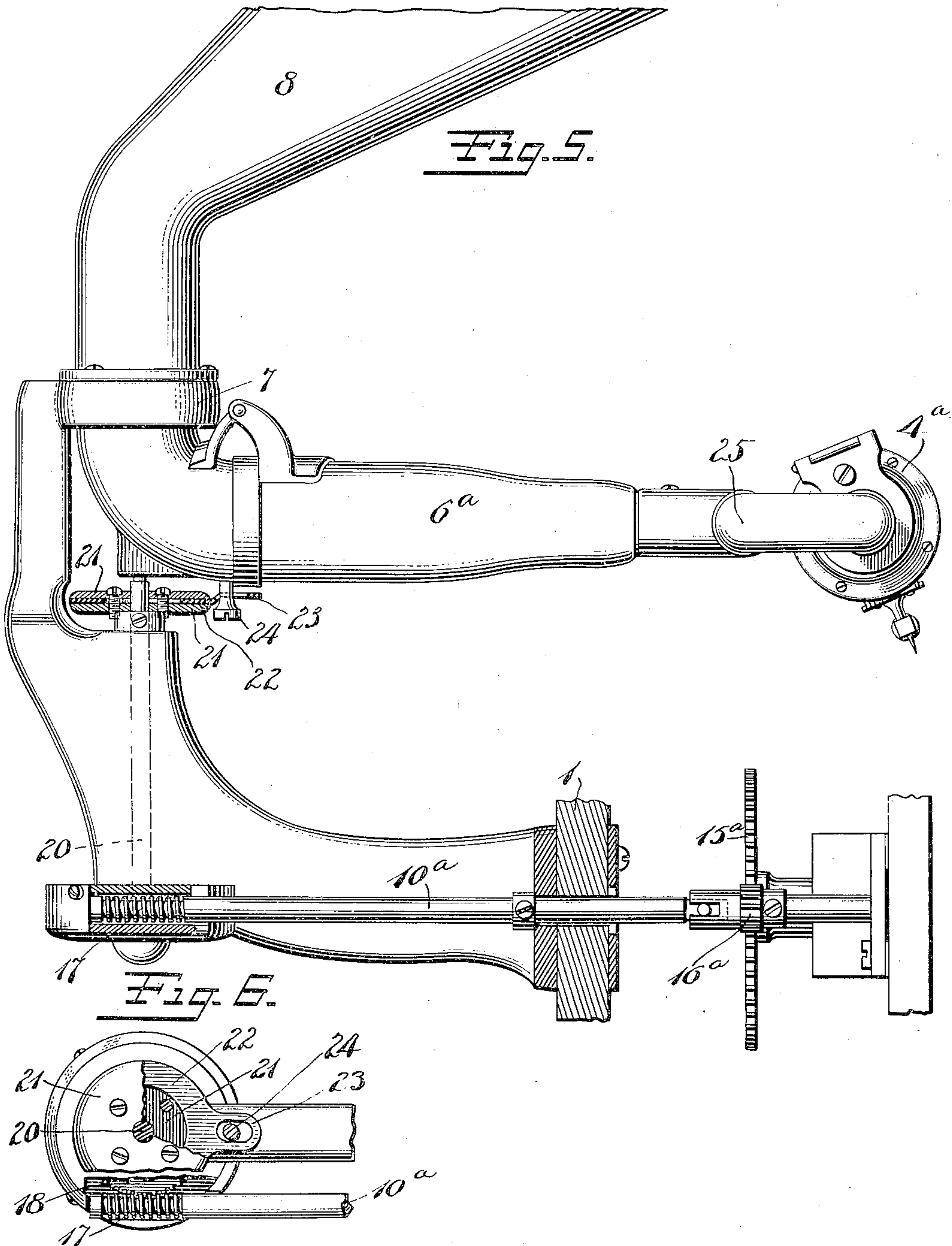
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

ALFRED KELLER, OF STE. CROIX, SWITZERLAND, ASSIGNOR TO MERMOD FRÈRES, OF STE. CROIX, SWITZERLAND.

## TALKING-MACHINE.

No. 925,346.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed October 4, 1907. Serial No. 395,945.

*To all whom it may concern:*

Be it known that I, ALFRED KELLER, residing at Ste. Croix, canton of Vaud, Switzerland, have invented certain new and useful  
5 Improvements in Talking-Machines, of which the following is a full, clear, and exact description.

This invention relates to improvements in talking machines, the object being to provide  
10 a simple and effective device for feeding the stylus arm over the record in such a manner as to cause the stylus point to register properly with the convolute or spiral groove in the record. By this means undue wear  
15 upon one side of the groove and upon the stylus point is avoided when the reproduction of sound is made.

Heretofore in machines of this character the groove itself has been depended upon to  
20 move the stylus point across the record, with the result that both the stylus point and the groove have been unnecessarily worn. By my invention this is avoided.

My invention also contemplates the further improvement in that it permits of varying the degree to which the stylus arm shall be fed, so as to vary the feed to accommodate it to the several different groove spacings. At the present time disk records are  
30 made by various concerns having different spacings between the spiral convolutions. By a very simple construction I am enabled to at once adapt the feed mechanism to any spacing. This feed apparatus is also useful  
35 for recording machines.

In the drawings, Figure 1 is a side elevation, partly broken away, of a talking machine constructed to embody my invention; Fig. 2 is a plan view thereof, also partly  
40 broken away; Figs. 3 and 4 are perspective views of details of construction; Fig. 5 is a side view of a modification; and Fig. 6 is a plan view of certain details of construction shown in Fig. 5.

Referring first to Figs. 1 to 4 inclusive, 1 is the box or casing containing the usual motor mechanism, which it is unnecessary to describe, because any desired form of motor mechanism may be employed. 2 is the central spindle or arbor upon which the disk  
50 record 3 is mounted and by which it is rotated. 4 is the reproducer or sound-box. 5 is the stylus needle. 6 is a tubular arm carrying the reproducer, leading to a suitable bearing 7. This is so constructed that

the reproducer may be moved to and fro transversely across the record. 8 is the horn extension, for intensifying the sound. All of these parts may be of any well-known construction. 9 is a lever frictionally mounted on an arbor 10, which has suitable supporting brackets. The frictional mounting preferably comprises a split sleeve 10<sup>a</sup> which takes on the end of the arbor with sufficient snugness to cause the lever arm 9 to be swung as the arbor rotates, but which may be slipped as occasion requires. 11 is a link connecting the arm 9 with the part 6, for example, through the medium of an adjustable sliding collar 12. 13 is a cap for the end of the arm 9, which affords a safe connection, the link 11 being hinged thereto. This cap 13 also permits the parts to be detached. The collar 12 may be provided with a set-screw 14 to permit the collar to be adjusted at any desired point on the member 6, nearer to or farther away from the axis of rotation in the bearing 7. 15 is a gear-wheel mounted on arbor 10 and meshing with the worm-screw 16, driven by the motor within the case 1. Proper gearing should, of course, be provided, so that when the disk record 3 has been revolved one complete revolution, the arbor 10 will have moved and shifted (through the medium of lever 9 and link 11) the arm 6 to a sufficient extent to move the stylus point the full width of the space between adjacent convolutions in the record. Inasmuch as these convolutions vary in spacing in different makes of records, this may be readily cared for by shifting the position of the collar 12 on the arm 6. Another way to accomplish the same object would be to shift the connection of link 11 on lever 9 nearer to or farther away from arbor 10. By providing a frictional connection between lever-arm 9 and arbor 10, the operator may freely lift the reproducer and swing the arm 6 to and fro, without damage to the gears or any of the associated parts.

In the modification shown in Figs. 5 and 6, 1 represents a portion of the box, as before. 16<sup>a</sup> represents a spur-gear on the motor shaft. This meshes with a spur-gear 15<sup>a</sup> on the arbor 10<sup>a</sup>. This arbor 10<sup>a</sup> is provided with a worm 17 meshing with gear 18. 20 is a shaft driven by gear 18, carrying the adjustable friction disks 21—21. Between these disks is a friction-plate 22 having a



slotted off-set arm 23. 24 is a pin passing through the slot in the arm 23 and connected to the stylus arm 6<sup>a</sup>. As the motor shaft revolves, it is obvious that through the several connections aforesaid, arm 6<sup>a</sup> will be moved so as to give the proper feed to the stylus point. When the operator desires to shift the stylus point, this may be done by lifting the reproducer and swinging it at will.

10 In the form shown in Figs. 3 and 4, the reproducer 4<sup>a</sup> is transversely hinged at the point 25 so that it may be lifted.

What I claim is—

1. In an apparatus of the character described, means for rotating a disk record, means for supporting a reproducer, including a swinging arm, means of connection between the motor and the swinging arm for imparting a swinging feeding movement to the latter as the disk-carrying means is revolved and means to permit the return of the arm without disconnecting the same from the feeding means.

2. In an apparatus of the character described, means for rotating a disk record, means for supporting a reproducer, including a swinging arm, means of connection between the motor and the swinging arm for imparting a swinging feeding movement to the latter as the disk-carrying means is revolved, and means for varying the degree of feed relatively to the diameter of the disk record used.

3. In an apparatus of the character described, means for rotating a disk record, means for supporting a reproducer, including a swinging arm, means of connection between the motor and the swinging arm for imparting a swinging movement to the latter as the disk-carrying means is revolved, and a friction clutch connection between the swinging arm of said means.

4. In a talking machine, a support for a disk record, means for rotating said support, a reproducer, an arm, a hinged bearing at one end of said arm, means for moving said arm to cause the free end thereof to traverse said record, said means being operatively connected to the means for rotating the disk record and means to permit the return of the arm without disconnecting the same from the means for causing the free end thereof to traverse said record.

5. In a talking machine, a support for a disk record, means for rotating said support, a reproducer, an arm, a hinged bearing at one end of said arm, means for moving said arm to cause the free end thereof to traverse said record, said means being operatively connected to the means for rotating the disk record, and including a friction clutch connection between the arm of said means.

6. In a talking machine, a support for a disk record, means for rotating said support, a reproducer, an arm, a hinged bearing at one end of said arm, means for moving said arm to cause the free end thereof to traverse said record, said means being operatively connected to the means for rotating the disk record, including a lever-arm, a shaft support therefor and frictional connection between the two, and a link leading from said lever-arm to said swinging arm.

7. In a talking machine, means for rotating a disk record, a hinged arm for carrying a reproducer, a reproducer supported by said arm away from the hinged portion thereof, a disk record having a spiral groove therein, a stylus point carried by the reproducer, and feeding means operatively connected and driven from the same source of power that drives the disk record to cause said swinging arm to move at a speed sufficient to cause the stylus point to follow the spiral groove in the record and a friction clutch connection between the lever and feeding means.

8. In a talking machine, a disk, a stylus, a hinged carrying-arm for said stylus, means for rotating the disk, and means for swinging the stylus arm, driven from the same source of power as employed for rotating the disk and means allowing the return of the arm without disconnecting the same from the driving means.

9. In a talking machine, a disk, a stylus, a hinged carrying-arm for said stylus, means for rotating the disk, means for swinging the stylus arm, driven from the same source of power as employed for rotating the disk, and means for varying the degree to which said stylus arm is swung relatively to the diameter of the disk.

ALFRED KELLER.

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